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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/S94,879	06/29/2001	Paul Glatkowski	38572.0024	4705

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EXAMINER

WYROZEBSKI LEE, KATARZYNA I

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 08/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/894,879

Applicant(s)

GLATKOWSKI ET AL.

Examiner

Katarzyna W. Lee

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on interview 8/5/2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-75 is/are pending in the application.
- 4a) Of the above claim(s) 50,51 and 55-75 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-49 and 52-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 23-75 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☒ Interview Summary (PTO-413) Paper No(s) 9.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 50 and 51, drawn to room containing electronic equipment, classified in class 313, subclass 2.
 - II. Claims 55 and 56, drawn to device comprising composite, classified in class 361, subclass 25.
 - III. Claims 57-76, drawn to layered article, classified in class 428, subclass 98.
 - IV. Claims 23-49, 52-54, drawn to composite comprising nanotubes, classified in class 524, subclass 495

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II or II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions a room comprising electronic equipment has nothing to do with the chemical composition of a composite.

Art Unit: 1714

3. Inventions III and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the composite can be utilized in an electromagnetic shielding device, however, this is not the only use for such composite.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II or III or IV, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Mr. Ehrman on August 5, 2002 a provisional election was made Group IV with traverse to prosecute the invention of composite, claims 23-49, 52-54. Affirmation of this election must be made by applicant in replying to this Office action. Claims 50, 51, 55-75 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Art Unit: 1714

Per further conversation with the applicant's attorney, the examiner informed that claims 55-75 would be rejoined upon request if they all contain allowable subject matter.

Double Patenting

7. Claims 23-75 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-27 of U.S. Patent No. 6,265,466 B1 ('466). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

Already patented application ('466) discloses composite for electromagnetic shielding comprising nanotubes. According to the claims of '466, composite comprises polymer and nanotubes wherein the nanotubes are oriented by application of shearing force.

According to the claims, the amount of the nanotubes can be 0.001-15 wt%, 0.01-5 wt% or 0.1-1.5 wt %. The nanotubes have aspect ratio of at least 100:1.

The shearing force utilized to align the nanotubes includes injection, extrusion or elongation, wherein the polymer can be thermoplastic or thermosetting.

Formed composite has a thickness of 1 mm and it is a layer located on an outer surface of an object.

The present invention also claims composite comprising polymer and nanotube utilized in electromagnetic shielding wherein the amounts of the nanotubes in the polymer, its aspect

Art Unit: 1714

ratio as well as the method of aligning the nanotubes overlaps with those of the present invention.

In the light of the above disclosure, the claims of the present invention and of the U.S. Patent '466 overlap such that one of ordinary skill in the art, when practicing present claims would arrive at the invention disclosed in an U.S. Patent 6,265,466.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 23, 30-34, 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Yakobson (US 6,280,677 B1).

Art Unit: 1714

The prior art of Jakobson discloses articles comprising nanotubes, which can be utilized in an electrical field.

The nanotubes of the prior art of Jakobson are oriented so that their physical properties are altered. The alignment is achieved by subjecting nanotubes to stress conditions and then to radiation. The stress applied to the nanotube composites of Jakobson includes tensile stress, torsional stress, bending stress and the like and it is conducted at temperatures of 500-1800°C, which are above melting point of the polymers listed in this prior art.

The carbon nanotubes of the prior art of Jakobson are carbon or boron nitride nanotubes, which have the diameter of 1-10 nm. Although the prior art of Jakobson does not discuss the aspect ratio of the nanotubes, for the purpose of claim 1, which does not provide any numerical value for the aspect ratio, such is an inherent attribute of nanotubes, fibers or any type of elongated structure. The nanotubes are utilized in an amount of 1-15 %.

The articles formed with nanotubes of the prior art of Jakobson will inherently require presence of the polymer wherein the chemical compounds will have moieties such as hydroxy, carboxy and amino, which moieties are reactive towards the nanotubes.

The absorption of the electromagnetic waves would therefore be an inherent property of the composite, since the amount of the nanotubes of the prior art overlaps with the amount of the nanotubes of the present invention.

In the light of the above disclosure, the prior art of Jakobson anticipates the requirements of claims rejected above.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who

Art Unit: 1714

has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1714

12. Claims 40, 41, 46-48, 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yakobson (US 6,280,677 B1) in view of Lavin (US 6,426,134 B1).

The discussion of the disclosure of the prior art of Yakobson from paragraph 3 of this office action is incorporated here by reference.

The prior art of Yakobson further discloses elongation of the nanotubes in order to further alter the electrical properties of the nanotube. Therefore, since elongation affords alignment of the nanotubes and increase in electromagnetic absorption with generation of heat, it would have obvious to obtain the same effect when the nanotubes of the prior art are also elongated.

The difference between the present invention and the disclosure of the prior art of Yakobson is the recitation of different polymers as well as the numerical range for the aspect ratio of the nanotubes, wherein the nanotubes and polymers named are capable of forming nanocomposite.

With respect to the above differences, the prior art of Lavin discloses nanotube composite, which includes single-wall nanotubes.

The nanotubes of the prior art of Lavin are carbon nanotubes with length of 10-300 nm and diameter of 1-2 nm. Therefore, the length to diameter ratio or the aspect ratio can be up to 300:1.

The polymers utilized in the composite of the prior art of Lavin include polyesters and polyamides, polyimides and polyurethanes.

The composite of the prior art of Lavin can be utilized in electronic industry due to its antistatic property.

Art Unit: 1714

The elongation of the nanotubes affords alignment of the nanotubes and increase in electromagnetic absorption with generation of heat.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize the composite of the prior art of Lavin and elongate the nanotubes as in the prior art of Yakobson and thereby obtain the claimed invention, since elongated nanotubes of the prior art would also provide efficient nanocomposite with electromagnetic shielding property.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited above is very applicable against present claims, however it was not applied due to bad date. Dupire (US 6,331,265 B1) possible interference, Newman (US 6,299,812 B1), Jin (US 6,283,812).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna W. Lee whose telephone number is (703) 306-5875. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (703) 306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

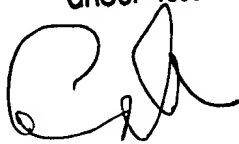
Art Unit: 1714

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KIWL

August 5, 2002

EDWARD J. CAIN
PRIMARY EXAMINER
GROUP 1500

A handwritten signature in black ink, appearing to be 'EJC', written over the printed name and title.